the search for truth is the religion of all thinking men and women nowadays.
Mathematics is one of the most living of studies when treated historically so
that we can follow the birth and development of great ideas. Thinking teachers
know how attractive and indispensable it is to introduce students to new ideas
and the truths they mirror, slowly and, if possible, as the actual discoverers
were introduced to them.   φ

NAPIER TERCENTENARY MEMORIAL VOLUME. Edited by *Cargill Gilston Knott.*
Published for the Royal Society of Edinburgh by Longmans, Green and
Co., London and New York, 1915. Pp. xii, 441. Price $7 net or
21s. net.

This magnificent volume contains the addresses and essays communicated
to the international congress held at Edinburgh in July, 1914, in celebration
of the tercentenary of the first publication of John Napier's system of loga-
rithms. It is superbly printed and bound, contains a frontispiece in color from
the well-known portrait of Napier in the University of Edinburgh and has
several other plates. This congress, of which a full account is given by Dr.
Knott, was the last international congress of any kind held before the Euro-
pean war broke out; and there is a certain melancholy interest in glancing
through this volume and seeing contributions of great value not only from
Great Britain but also from America, France, Germany, Italy, and even Tur-
key. The communications fall into two groups. Some treat of the life and
work of Napier, and some with subsequent developments of the logarithmic
idea and contain valuable additions to our means of calculation. But the
greatest interest, perhaps, will center in the contributions of the first group,
and of these the most striking is the inaugural address by Lord Moulton, in
which an attempt is made to reconstruct the gradual evolution of Napier's
great discovery. Most of us know that Lord Moulton, in his career at the
Bar, had great experience in the study of inventions, and this address of his
is one of the most important contributions to the history of mathematics that
has been made in recent years. Indeed the whole volume is quite indispensable
for the future historian of mathematics. We may mention that Prof. F. Cajori
shows how the history of the subject has been mangled by authoritative his-
torians of the past, and that there are also notable contributions made by
Dr. J. W. L. Glaisher, Prof. D. E. Smith, Prof. G. A. Gibson, and many
others. Finally it must be mentioned that a copy of the rare work of Bürgi
was lent to the congress by the town library of Danzig and it is fully described
in this volume.   Φ

A COURSE OF MODERN ANALYSIS: An Introduction to the General Theory of
Infinite Processes and of Analytic Functions; with an Account of the
Principal Transcendental Functions. By *E. T. Whittaker* and *G. N.
Watson.* Second edition, completely revised. Pp. vi, 560. Cambridge
(England) : University Press, 1915. 18s. net.

The first edition (by Professor Whittaker alone) of this work was pub-
lished in 1902, and in the preparation of the second edition Professor Whittaker
has been most ably helped by Mr. Watson. To Mr. Watson the new chapters
on Riemann Integration, Integral Equations, and the Riemann Zeta-Function

are practically wholly due. Part II ("The Transcendental Functions") is, as we should expect, most admirably done; but, since the subject-matter is exclusively technical, the philosopher and logician will turn with more interest to those chapters in Part I ("The Processes of Analysis") in which more fundamental subjects are discussed. It is a most pleasing fact that the treatment of irrational numbers (pp. 4-6), the theory of convergence (pp. 11-40), and the proof of the theorem of Cauchy and Goursat on complex integration (pp. 53-54, 84-87) by the help of the "modified Heine-Borel theorem," are so well done in this new edition. The theorem attributed to Bolzano (p. 13) was not really proved by Bolzano. Bolzano used, in 1817 and not in 1851 as stated, the same *process* which afterwards, in the hands of Weierstrass, led to an exact proof. The exact proof of the condition mentioned on page 14 is also due to Weierstrass and not to Cauchy. The book is a thoroughly good one, and will be of great value in English and American universities.   Φ

FUNDAMENTAL CONCEPTIONS OF MODERN MATHEMATICS. By *Robert P. Richardson* and *Edward H. Landis.* Chicago: The Open Court Publishing Co., 1915. Cloth, $1.25 net.

This work deals, not with the technicalities of mathematics or with its applications as an art, but with a basis for its scientific development. In considering mathematics as a science rather than as an art two points of view may be taken. With the first, that of pure formalism, the scope of the investigation hardly goes beyond symbols and the laws of their combination, little heed being paid to what these symbols represent. The prevailing tendency is to look at mathematical science in just this aspect, but the authors of the present work, preferring a broader outlook, have chosen the second viewpoint where attention is focussed upon the subject matter of the science, the form in which this is symbolically expressed being regarded as of minor importance. They are not content to rest satisfied with a science of symbols, but inquire into the realities underlying mathematical formulas. Naturally a primary object of the quest is to furnish a clear and precise explanation of the nature of the various types of quantities represented by the symbols of mathematics. This cannot be satisfactorily done by merely giving a résumé of doctrines already current, for the field of inquiry here was largely virgin soil and much original work was necessary to attain a theory that accorded with mathematical practice. The account given of quantities and their classification goes into the matter with great detail, and has in view not merely the quantities of ordinary algebra but likewise those of quaternions and of all other branches of algebraic science. Equally thorough is the consideration given to the constitution of variables and the essential characteristics of a functional relation between variables. Besides these three main topics the discussion takes up a number of other questions, minor ones relatively speaking but of no small importance to the theory of mathematics. The book, which has as subtitle *Variables and Quantities with a Discussion of the General Conception of Functional Relation,* is the first of a series projected to cover all the fundamental conceptions of modern mathematics, but it is a complete work in itself, and the questions that come within its scope are by far the most fundamental of all arising in mathematical science.